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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,849	01/22/2004	Matthew Prince	ITL.0941US (P15694)	5852
21906	7590	10/11/2006	EXAMINER	
TROP PRUNER & HU, PC 1616 S. VOSS ROAD, SUITE 750 HOUSTON, TX 77057-2631			SHAKERI, HADI	
			ART UNIT	PAPER NUMBER
			3723	
DATE MAILED: 10/11/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center">Office Action Summary</p>	<p>Application No.</p> <p align="center">10/762,849</p>	<p>Applicant(s)</p> <p align="center">PRINCE ET AL.</p>	
	<p>Examiner</p> <p align="center">Hadi Shakeri</p>	<p>Art Unit</p> <p align="center">3723</p>	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 11-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 11-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Response to Amendment

1. The amendment filed on 02/16/06 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the claims as amended now recite for "an unthickened" slurry, which is not supported in the specification as originally filed. Applicant in the Arguments/Remarks submitted with the amendment, states that the claims as originally filed talk about a slurry made up of a fluid mixture including silica and a basic pH solution and points to page 2, lines 23-25 of the specification to support the amendment. Lines 23-25 of page 2, similar to lines 16-19 on page 1 (Background), supports a conventional abrasive mixture including silica abrasives and a basic pH solution, but it does not support "an unthickened" slurry as claimed. Page 2 only supports a "fluid mixture" including silica and pH, but the mixture is not limited to thickened or unthickened mixtures. In fact "thickened" and "unthickened" mixtures are not described. There is nothing in the disclosure that would point out what elements or lack thereof, in the fluid mixture constitute "unthickened" mixture.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-5 and 11-15 are finally rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in

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the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The invention as claimed now is directed to "an unthickened" silica slurry, which is not supported in the specification as originally filed.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-5 and 11-15 are finally rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The above claims recite the limitation "unthickened", rendering the claims indefinite, since it is unclear as to what elements should be lacking and/or what elements should be in the slurry to meet the limitation.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 11 and 12 (as best understood) are finally rejected under 35 U.S.C. 102(b) as anticipated by Tredinnick et al. or, in the alternative, under 35 U.S.C. 103(a) as obvious over Tredinnick et al. in view of Applicant's Admitted Prior Art (AAPA).

Tredinnick et al. as described above discloses all of the limitations of claim 11, i.e., aging a silica slurry for at least fifty days (12 weeks) from its manufacture date and using to CMP a metallic layer, i.e., metalloid germanium, however in the alternative, it is known in the art to use silica slurry in the CMP step of damascene process in manufacturing semiconductor integrated

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circuits as admitted by Applicant on page 1. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to use the silica slurry with the thickening agent as disclosed by Tredinnick et al., in the damascene process to define a copper line in a trench, as this process is known in the art, in prevention of scratching the workpiece.

8. Claims 1-5 and 13-15 (as best understood) are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Tredinnick et al. in view of AAPA.

Tredinnick et al. meets all of the limitations of claims 1 and 6, as explained above, except for using it on a tantalum-containing layer. As indicated in section 6, it would have been obvious for one of ordinary skill in the art to use the slurry of Tredinnick et al. in a damascene process, which meets the limitations as recited.

Response to Arguments

9. Applicant's arguments filed July 17, 2006 have been fully considered but they are not persuasive.

In overcoming the 112, 1st paragraph rejection for introducing new matter, Applicant argues that there is no requirement that thickened or unthickened must be precisely stated in the specification, so long as one of ordinary skill in the art understands the limitation. This is not found persuasive. In fact 35 U.S.C. 112, first paragraph, requires such clarity, that the specification shall be written in such full, clear, concise, and exact terms. The limitation "unthickened" was first introduced in the amendment filed on February 16, 2006, in a clear attempt to read over prior art cited. Examiner merely requires the support for the limitation. The argument seems to be that broadly defined slurry embodies both "thickened" and "unthickened", which may be so, but claiming a particular embodiment, i.e., unthickened would require support. An analogy would be that if a description defines a screwdriver, claiming a flat head screwdriver

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to read over a reference disclosing a Phillips head screwdriver applied to original claim reciting a screwdriver, would have sufficient support. Although prior art, e.g., Tredinnick disclose and defines "thickened" and "unthickened" slurries, the instant description does not. The Examiner cannot presume that the Applicant had possession of such embodiments lacking any support in the originally filed specification or drawings.

The argument with respect to indefiniteness rejection is that since Examiner himself introduced the term then it should be understood with regards to the scope of the newly recited claims. This again is not found persuasive, since the term is defined by the reference in the context as disclosed, the term is not defined by the instant specification, i.e., as to what would define a thickened slurry, it including cellulose derivative, other fillers or additives. The instant specification limits the slurry to conventional slurries used in CMP, which could contain several different elements in addition to basic pH solution and silica or alumina. In fact basic pH solution, itself could contain several components. Although the Examiner would be able to define an "unthickened" slurry per Tredinnick's disclosure, the term is not defined by the present specification for the Examiner to ascertain the scope of the newly recited claims.

Although Tredinnick may define slurry including cellulose derivative as "thickened" slurry, the specification as originally filed does not define an "unthickened" slurry. It appears Applicant is arguing against slurries not having cellulose derivatives, which is arguing against features not recited (inclusion of which would be considered new matter). If Applicant is arguing for slurries not having other elements (not clearly defined or recited in the claims), Tredinnick is considered to meet such limitations, lacking evidence to show otherwise.


Therefore the rejections are maintained, lacking any evidence to define the scope of the claims in order to overcome the rejections as applied.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hadi Shakeri whose telephone number is 571-272-4495. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph J. Hail, III can be reached on 571-272-4485. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Hadi Shakeri
Primary Examiner
Art Unit 3723

hs
October 2, 2006